VENTILATED CLOSET BOWL

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Fig. 1.

Fig. 2.

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Our invention relates to closet bowls, and has among its objects and advantages the provision of an improved ventilated bowl.

In the accompanying drawings:

Figure 1 is a side elevational view of a bowl illustrating our invention applied thereto;

Figure 2 is a detail view of a cover-actuated switch structure;

Figure 3 is a sectional view along the line 3—3 of Figure 1;

Figure 4 is a detail view of a trip; and

Figure 5 is a perspective view of a bolt.

In the embodiment selected for illustration, the bowl 10 is provided with a seat 12 having a seal 14 attached thereto for engagement with the bowl in the closed position of the seat. A cover 16 normally overlies the seat 12, this cover being fixedly secured to a shaft 18 rotatably journaled in supports 20 anchored to the bowl structure 10 in the usual manner. Seat 12 is pivotally connected with the shaft 18.

A water inlet pipe 22 places the bowl 10 in communication with the water tank 24, communication being controlled by the usual valve 26 having seating engagement at 28 with the upper end of the pipe 22. To the pipe 22 is connected an exhaust pipe 30 leading to a fan housing 32 having an exhausting conduit 34 leading to the atmosphere.

In Figure 3, a fan 36 is located inside the fan housing 32, and this fan is connected with the shaft 38 of a motor 40 mounted inside a chamber 42 inside the water tank 24, the chamber being watertight with respect to the tank. Bolts 44 secure the fan housing 32 and the motor to the wall 46 of the tank 24, the motor being clamped across rubber cushions 48 engaging the wall 46. Rubber sleeves 50 are provided for the portions of the bolts 44 extending through the wall 46 to dampen vibration.

The bottom of the water tank 24 is formed with a chamber 52 within which is mounted a housing 54 having a flange 56 bolted at 58 to the tank wall 60. The housing 54 is also bolted at 62 to the tank wall 64. A crank arm 66 has one end secured to the shaft 18 and its other end pivotally connected at 68 with one end of a link 70 having its opposite end pivotally connected at 72 with a trip and switch slide 74.

Upon the wall 76 of the housing 54 are mounted two contacts 78 secured thereto by terminal bolts 80, each connected with a circuit wire 82 electrically connected with the motor 40. Contacts 78 and the terminal bolts 80 are insulated from the wall 76.

To the slide 74 is fixed a post 84 provided with a bridge element 86 arranged to have engagement with the contacts 78 to close the circuit through the motor. The crank 66 exerts a pull on the link 70 when the cover 16 is moved to an open position for bringing the bridge element 86 into bridging engagement with the contacts 78.

When the cover 16 is moved to the closed position of Figure 1, the slide 74 is advanced to the dotted line position of Figure 2, at which time the bridge element 86 is positioned clear of the two contacts 78 for breaking the circuit through the motor.

A bell crank 88 is pivotally mounted on a bolt 90 secured to the side walls 92 of the housing 94, the arm 96 of the bell crank being pivotally connected at 98 with the lower end of a link 99 having its upper end pivotally connected at 100 with a crank arm 102 at one end of a shaft 104 rotatably journaled in the side walls 106 of the tank 24. An arm 108 is fixedly connected at one end with the shaft 104 and is provided with the usual link connection 110 for actuating the valve 26.

The arm 112 of the bell crank 88 is arranged in the path of a trip 114 pivotally connected at 116 to one end of the slide 74, see Figures 2 and 4. In Figure 4 a spring 118 is bolted at 120 to the slide 74 and engages the trip 114 to yieldingly hold the trip in the positions of Figures 2 and 4. With the cover 16 in its open position, the trip 114 lies close to the arm 112 to engage the arm when the cover 16 is lowered for pivoting the bell crank 88 to its dotted line position of Figure 2. Such movement of the bell crank lifts the valve 26 off its seat 28.

The bolt 90 is provided with a square end 122 fitting a similarly shaped opening in one of the side walls 92 so as to be restrained from rotation. A slot 124 is provided in the bolt 90 within which is secured one end of a spring 126, the other end of the spring engaging a lug 128 on the arm 94 to urge the bell crank to the full line position of Figure 2.

A rubber bumper 130 is mounted on a flange 132 on the end wall 134 of the housing 94, this wall and the wall 64 being provided with a common opening 136 to accommodate pivotal movement of the arm 94. The bumper 130 is arranged in the path of the arm 94 so as to strike there-against when returning to its full line position of Figure 2.

As the bell crank 88 is pivoted to its dotted line position of Figure 2, the trip 114 slips underneath the bell crank to permit the spring 126...
to return the bell crank to its full line position.

It will thus be seen that we have provided a ventilating system wherein the circuit of the motor is closed when the cover 16 is raised to an open position and in which manner closing of the cover breaks the circuit through the motor. The cover 16 is maintained in slightly spaced relationship with the seat 12 by the usual pads 138.

The tank 24 is provided with the usual water inlet pipe 140.

Without further elaboration, the foregoing will so fully illustrate our invention, that others may, by applying current knowledge, readily adapt the same for use under various conditions of service.

We claim:

1. In a closet bowl having a cover and a water tank and a valve for placing the water tank in communication with the bowl, a motor driven fan, an air inlet communicating with the bowl and the fan, an air exhaust conduit communicating with said fan, a switch for opening and closing the circuit of the motor, a slide member operatively connected with said cover to close said switch when said cover is moved to an open position and to open the switch when the cover is moved to a closed position, and a valve actuating means operatively connected with said slide member for opening the valve when said cover is moved to a closed position.

2. The invention described in claim 1 wherein said valve actuating means comprises a pivotally mounted bell crank having one arm thereof arranged in the path of said slide member and its other end operatively connected with the valve, and a spring means for returning the bell crank to its normal position to release said valve for movement to its closed position.

3. The invention described in claim 1 wherein said slide member is provided with a trip and in which said valve actuating means comprises a pivoted bell crank having one arm thereof arranged in the path of said trip and its other arm operatively connected with said valve, said trip engaging said first arm of the bell crank for pivoting the latter to a valve opening position when said cover is moved to a closed position, and a spring means acting on said bell crank to return the latter to a normal position for releasing the valve.

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